From: Theresa Noble Hill
Sent: Thursday, October 18, 2007 4:59 PM
To: Trevor Hammons; 'Sharon Gentry'
Cc: Mann, Dara D.; 'Nicole Longwell'; Bond, Michael R.; Vicki Bronson
Subject: re: Follow-up Meet and Confer Today

Trevor and Sharon,

I am writing to confirm our discussions this afternoon during our meet and confer that was continued from October 10, 2007.

We will continue the ODAFF on-site document production in Oklahoma City at 11:00 a.m. on Monday, October 22, 2007.

We will review documents at ODAFF's Tahlequah office on Thursday, October 25, 2007 at 9:00 a.m. Prior to Thursday, Sharon will confirm for us an approximate quantity of documents and whether we need to bring boxes.

You did not have any more information concerning our identified deficiencies in the Tourism production. We understand that you will provide us with an index indicating which Tourism documents are responsive to which discovery requests no later than Oct. 26, 2007. We understand that you will provide a privilege log, if necessary, by that date also.

We understand that you will provide the index of responsive documents and privilege log for the Department of Wildlife Conservation by Oct. 26.

We understand that you are hopeful that we can set up an on-site document review at the Department of Mines during the first two weeks of November. If at all possible, we would prefer the first week of November.

We understand that you will produce some documents from the Department of Health by Monday, October 22, 2007. However, due to problems with obtaining documents from this agency, you will continue to determine whether there are additional documents available and produce any remaining documents by December 1, 2007.

Please let me know if we have misunderstood or misstated our conversations today.

Theresa N. Hill
Rhodes Hieronymus
OKLAHOMA
Telephone: 918/582-1173
Facsimile: 918/592-3390
thill@rhodesokla.com

EXHIBIT
1

From: Trevor.Hammons@oag.ok.gov [mailto:Trevor.Hammons@oag.ok.gov]
Sent: Friday, October 26, 2007 4:46 PM
To: Theresa Noble Hill
Subject: RE: re: Follow-up Meet and Confer Today

Theresa,

We consider this our "production" from the Department of Heatlh. It is both ESI and hard copy. We will confirm by December 1, 2007 (probably much earlier than that) that there are no more responsive documents at the department of health. I will be transmitting ODWC and Tourism relevancy logs and a revised OSE log shortly. OSRC will take more time because we have done multiple productions with multiple logs at that agency.

J. Trevor Hammons
Oklahoma Office of the Attorney General
Environmental Protection Unit
313 N.E. 21 St.
Office: (405) 522-2801
Fax: (405) 522-0608

"Theresa Noble Hill" <THill@rhodesokla.com>

10/26/2007 04:18 PM

To "Trevor Hammons" <trevor_hammons@oag.state.ok.us>, "Sharon Gentry" <SGentry@riggsabney.com>

cc "Mann, Dara D." <DMann@faegre.com>, "Nicole Longwell" <nlongwell@mhla-law.com>, "Bond, Michael R." <Michael.Bond@KutakRock.com>, "Vicki Bronson" <vbronson@cwlaw.com>, "Gary D. Barber" <GBarber@rhodesokla.com>, "Lori A. White" <lwhite@rhodesokla.com>

Subject RE: re: Follow-up Meet and Confer Today

Trevor and Sharon,

We received your CD relating to the Department of Health. Do you consider this an ESI production or hard-copy production? Do you expect to make an additional production, (ESI or hard-copy) by December 1, 2007? Please provide clarification of the status of the Department of Health hard-copy and ESI productions. Thank you.

Theresa

-----Original Message-----
From: Theresa Noble Hill
Sent: Thursday, October 18, 2007 4:59 PM
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Cc: Mann, Dara D.; 'Nicole Longwell'; Bond, Michael R.; Vicki Bronson
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Please let me know if we have misunderstood or misstated our conversations today.

Theresa N. Hill

If you are the intended recipient but do not wish to receive communications through this medium, please so advise the sender immediately.

North Wind

Poultry Quantitative PCR Analytical Summary

09-17-07

Overview:

The objective of this project was to quantify the number of poultry specific Brevibacteria biomarker gene copies contained in water, soil, and/or litter samples using quantitative polymerase chain reaction (qPCR). The client is Camp, Dresser and McKee. Table 1 describes the sample matrix and the condition of the samples upon arrival to the analytical laboratory.

Table 1. Description of samples and volume or mass filtered for DNA extraction.

Sample ID	Matrix--Date Sampled	Condition Received/Observations	Volume Filtered (L) or Mass Extracted (g)
EOF-spr-010-5-9-06	Water--5/9/06	Cold/bottle intact	40 mL
EOF-spr-17A-01-5-1-06	Water-5/1/06	Cold/bottle intact	30 mL
EOF-spr-023-6-18-06	Water-6/18/06	Cold/bottle intact	25 mL
LAL16-SPR2-7-18-06	Water-7/18/06	Cold/bottle intact	100 mL
LAL16C-2-7-18-06	Soil-7/18/06	Cold/sealed bag	0.35 g
LAL11C-2-6-28-06	Soil-6/28/06	Cold/sealed bag	0.57 g
HFS16-BF1-01-6-15-06	Water-6/15/06	Cold/bottle intact	400 mL
SALspr-6-28-06	Water-6/28/06	Cold/bottle intact	150 mL
LAL15-SP2-7-11-06	Water-7/11/06	Cold/bottle intact	250 mL
RS-PRICEcrk-01-4-29-06	Water-4/29/06	Cold/bottle intact	150 mL
RS-574-BIO	Water	Cold/bottle intact	200 mL
Lk04-0-01-5-16-06	Water-5/16/06	Cold/bottle intact	250 mL
HFS28A-BF1-01-6-15-06	Water-6/15/06	Cold/bottle intact	400 mL
Rs-1-01-8-8-06	Water-8/8/06	Cold/bottle intact	500 mL
FAC-01A-1	Litter--2/2/06	Cold/sealed bag	0.25 g
FAC-01A-2	Litter--2/2/06	Cold/sealed bag	0.25 g
FAC-01A-3	Litter--2/2/06	Cold/sealed bag	0.25 g
FAC-01A-4	Litter--2/2/06	Cold/sealed bag	0.25 g
FAC-01A-5	Litter--2/2/06	Cold/sealed bag	0.25 g
FAC-01B-1	Litter--2/2/06	Cold/sealed bag	0.25 g
FAC-01B-2	Litter--2/2/06	Cold/sealed bag	0.25 g
FAC-01B-3	Litter--2/2/06	Cold/sealed bag	0.25 g
FAC-01B-4	Litter--2/2/06	Cold/sealed bag	0.25 g
LAL8-A-2-6-19-06	Soil--6/19/06	Cold/sealed bag	0.25 g
LAL16B-2-7-18-06	Soil--7/18/06	Cold/ sealed bag	0.25 g
RS-901-BIO	Water--8/9/06	Cold/ bottle intact	250 mL
LAL16-GW2-7-18-06	Water--7/18/06	Cold/bottle intact	250 mL
CollinsWell#1-7-7-06	Water--7/7/06	Cold/bottle intact	250 mL
66783-7-26-06	Water--7/26/06	Cold/bottle intact	300 mL
LK-01-0-01-8-9-06	Water--8/9/06	Cold/bottle intact	300 mL
Hester-498-8-10-06	Water--8/10/06	Cold/bottle intact	250 mL

EXHIBIT

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The samples arrived in good condition at 4 deg C. All samples were received within 24 hours of sample collection. Upon arrival, the samples were filtered and frozen for storage at -80 deg C until the DNA extraction was performed. Following DNA extraction, the samples were first subjected to polymerase chain reaction (PCR) using universal bacterial probes in order to verify amplifiable DNA was present in the sample. In addition, for the 16S rRNA gene, a "nested" qPCR approach can be applied in which the universal bacterial PCR-amplified DNA is used as the template in a qPCR reaction. Although the results from the nested qPCR cannot be quantified per se, they can be used to lower the detect limit for the qPCR in order to determine if the poultry specific Brevibacteria biomarker gene is present at concentrations lower than the method detect limit (MDL) using the groundwater DNA extractions. The results of these studies are described here.

Methods:

DNA Extraction. For soil and/or litter samples, DNA was extracted from 0.25 g of soil or litter using the FastDNA®SPIN® Kit for Soil protocol. For surface water shipped to the laboratory, between 100 and 1,000 mL of groundwater was filtered through a Supor-200, 0.2 µm filter. The filters were frozen at -80 deg C and then shattered. Next, each sample tube was amended with 2 mL of DNA-free water, vortexed vigorously for 15 minutes, and the liquid volume was partitioned into DNA extraction tubes. DNA extractions were performed using the FastDNA®SPIN® Kit for soil according to the manufacturer's instructions. All DNA extractions were cleaned using an ethanol precipitation method. Community DNA was eluted in nuclease-free water (50 uL) and stored at -20 deg C.

Amplification of Bacteria. The PCR was used to amplify nearly full-length 16S rDNA genes from *Bacteria*. Each 25-µL PCR reaction included 1 X PCR buffer , 1.5 mM $MgCl_2$, 0.5 uM each 8F forward and 907R reverse primer, 1 u/50uL Taq DNA polymerase, 0.2 mM dNTP, 1 uL template DNA, and 20 uL molecular-grade water. Amplification was performed on a MJ Research Peltier Gradient thermocycler using the following regime: 94 deg C (5 min) followed by 30 cycles of 94 deg C (1 min), 53.5 deg C (1 min), and 72 deg C (1 min 50 sec). The reaction was finished with an additional 7 minutes at 72 deg C. PCR products were examined by UV light in a 1% agarose gel stained with ethidium bromide to confirm specificity of the amplification reactions.

Sepharose cleanup. Any sample not amplifying in the PCR was processed through a Sepharose CL-4B (Sigma-Aldrich) size exclusion gel chromatography cleanup. Briefly the micro-bio spin columns (Bio-Rad) were packed with sterile Sepharose CL-4B and washed with Tris-HCl buffer (pH 8). Sample was added to the packed gel column and eluted by spinning in a micro-centrifuge.

Detection of a Poultry Specific Brevibacteria Biomarker. The qPCR methods for assessing the 16S rRNA gene are very sensitive in detecting specific DNA fragments. The detection limit for the methods used is approximately 6 gene copies per uL of the DNA extraction. Biomarker DNA was cloned into a plasmid was used as the source of the quantitative standards used in the analysis. Plasmid DNA containing the target 16S rRNA gene from the poultry specific Brevibacteria biomarker was purified and quantified fluorometrically. Based on the known size of the plasmid and insert, DNA concentrations were converted to insert copy numbers. A dilution series spanning seven orders of magnitude was generated using known concentrations of each plasmid. Amplification and detection of the DNA was performed using the MJ Chromo-4 System. The acceptance criterion for the standard curve is a linear R^2 value of greater than 0.995.

To determine qPCR results, sample DNA diluted to a final concentration of 15 ng/5uL DNA was combined with following reagents to reach a final concentration of 1 X SYBR Green Master Mix, 0.5 uM 157F and 727R primer and water to reach 20 uL and 5 uL of diluted sample DNA. Amplification was performed on the MJ Research PTC-2004 thermocycler using the following regime: 50 deg C (2 min), 95 deg C (15 min), 40 cycles of 95 deg C (30 sec), 60 deg C (1 min), plate read and 50 deg C (5 min). The melting curve was determined using the following protocol: heat from 60 deg C to 90 deg C by 0.3 deg C increments,

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and holding for 5 seconds before reading the fluorescence of the samples.

Nested qPCR results were determined by purifying the PCR products using the QIAquick PCR Purification Kit, as per the manufacturer's protocol, and then running the purified samples through qPCR, as described above.

QA/QC Requirements. To determine if and where potential contamination or interference occurred during sample processing, positives and reagent blanks or negatives and matrix spikes of the PCR and qPCR samples were prepared. A positive control consisting of pure DNA (known to amplify by specific DNA primers) was used for the PCR and qPCR procedure. A matrix spike consisting of pure DNA (known to amplify by specific DNA primers) was used for the PCR and qPCR procedure. Negative controls consisted of water-only blanks for the PCR and qPCR procedure. The qPCR reactions were run in triplicate for each sample to determine the reproducibility of the method.

Results:

The samples arrived at the lab in good condition at 4 deg C with ice still in the cooler. The samples were filtered in the lab, and the filters were immediately placed in a -80 deg C freezer and stored until the DNA extraction was performed. Table 2 summarizes the qPCR analysis of the poultry project samples. The DNA extraction negative control and all PCR negative controls did not amplify any product. In addition, all calibration control checks were within acceptable values.

Table 2. Results of molecular analyses for the poultry samples.

Sample ID	Matrix	DNA (ng/L or ng/g)	qPCR Poultry Specific Biomarker (copies/ul water or g soil or g litter)			qPCR matrix spike amplified? *	Nested qPCR amplified? *	Biomarker melt peak identified?	Other melt peaks observed?
EOF-spr-010-5-9-06	Water	1.7	1.05E+07	±	1.70E+06	Yes	N/A	Yes	No
EOF-spr-17A-01-5-1-06	Water	72.5	2.48E+06	±	4.71E+05	Yes	N/A	Yes	Yes
EOF-spr-023-6-18-06	Water	4.3	1.11E+05	±	2.49E+03	Yes	N/A	Yes	No
LAL16-SPR2-7-18-06	Water	-1.0	0.0			Yes	No	N/A	N/A
LAL16C-2-7-18-06	Soil	14.5	0.0			No, Inhibited	N/A, Inhibited	N/A	N/A
LAL11C-2-6-28-06	Soil	73.2	0.0			Yes	Yes	Yes	No
HFS16-BF1-01-6-15-06	Water	6.8	4.00E+03	±	1.60E+03	Yes	N/A	Yes	No
SALspr-6-28-06	Water	-0.6	5.82E+02	±	1.56E+02	Yes	N/A	Yes	No
LAL15-SP2-7-11-06	Water	5.0	2.89E+03	±	7.69E+02	Yes	N/A	Yes	No
RS-PRICEcrk-01-4-29-06	Water	4.7	3.45E+05	±	1.43E+05	Yes	N/A	Yes	No
RS-574-BIO	Water	6.7	1.80E+05	±	6.09E+04	Yes	N/A	Yes	No
Lk04-0-01-5-16-06	Water	6.8	3.69E+03	±	3.24E+03	Yes	N/A	Yes	No
HFS28A-BF1-01-6-15-06	Water	-0.7	2.48E+03	±	1.28E+03	Yes	N/A	Yes	Yes

Rs-1-01-8-8-06	Water	7.0	3.19E+04	±	6.75E+03	Yes	N/A	Yes	Yes
FAC-01A-1	Litter	33.7	2.18E+09	±	3.53E+08	Yes	N/A	Yes	No
FAC-01A-2	Litter	4.7	2.47E+08	±	3.22E+07	Yes	N/A	Yes	No
FAC-01A-3	Litter	-0.5	2.67E+07	±	2.69E+06	Yes	N/A	Yes	No
FAC-01A-4	Litter	3.4	1.49E+08	±	1.10E+07	Yes	N/A	Yes	No
FAC-01A-5	Litter	4.1	5.67E+08	±	3.75E+07	Yes	N/A	Yes	No
FAC-01B-1	Litter	94.5	3.94E+09	±	6.28E+08	Yes	N/A	Yes	No
FAC-01B-2	Litter	40.5	2.66E+09	±	7.57E+08	Yes	N/A	Yes	No
FAC-01B-3	Litter	34.5	4.75E+06	±	4.23E+06	Yes	N/A	Yes	No
FAC-01B-4	Litter	117.1	5.99E+09	±	1.74E+09	Yes	N/A	Yes	No
LAL8-A-2-6-19-06	Soil	22.34	7.00E+03	±	4.43E+02	Yes	N/A	Yes	No
LAL16B-2-7-18-06	Soil	28.94	2.91E+05	±	1.95E+04	Yes	N/A	Yes	No
RS-901-BIO	Water	1.3	0.0			Yes	No	N/A	N/A
LAL16-GW2-7-18-06	Water	2.0	0.0			Yes	No	N/A	N/A
CollinsWell#1-7-7-06	Water	4.0	0.0			Yes	No	N/A	N/A
66783-7-26-06	Water	0.8	0.0			Yes	No	N/A	N/A
LK-01-0-01-8-9-06	Water	5.2	0.0			Yes	No	N/A	N/A
Hester-498-8-10-06	Water	2.9	0.0			Yes	No	N/A	N/A

N/A, not applicable. The sample was not run with the nested qPCR assay and/or the biomarker melt peak was not identified because none was detected in the qPCR sample run.
* inhibited indicates that the sample did not amplify with qPCR even after a sepharose cleanup was performed and the sample was diluted to a lower DNA concentration.

Standard Operating Procedure
Manure Sampling for DNA Analysis

SOP: 5-3
Revision: 2
Initial Date: 4/26/2006
Last Revised: 2/6/2007
Page 1 of 9

Prepared: Darren L. Brown
Review: Roger Olsen
Approved:
Date Approved: 2-06-07

1.0 Overview and Application

This standard operating procedure (SOP) describes field procedures used for collection of fecal matter for identifying the types and abundance of bacterial DNA. The bacterial DNA is first amplified by polymerase chain reaction (PCR), then digested with a restriction enzyme. The enzyme cuts DNA strands into different size fragments whose length is dependent upon the DNA sequence, and the last (terminal) fragment is labeled for detection. Each terminal fragment length is represents approximately one bacterial species. This program is designed to identify DNA fragments from bacteria that reside in fecal material from various animals, including cattle, swine, ducks, geese and humans.

2.0 Selection of Sampling Locations

Sample locations will be selected from farms, wildlife areas, septic clean-out trucks, or wastewater treatment plants as appropriate. The following sources of fecal matter will be targeted for collection.

1. A total of 10 fields where beef cattle are actively grazing; preferably five fields within the basin and five fields outside the basin,
2. A total of 2 dairy cattle milking barns; preferably in the basin, but could be outside of the basin (close to the basin as possible),
3. A total of 2 swine facilities; preferably in the basin, but could be outside of the basin (close to the basin as possible),
4. A total of five active geese landing areas; preferably in the basin, but could be outside of the basin (close to the basin as possible),
5. A total of five active duck landing areas; preferably in the basin, but could be outside of the basin (close to the basin as possible),
6. A total of three septic clean out trucks; preferably all in the basin, but at a minimum at least one sample in the basin,
7. A total of three small wastewater treatment plan influent locations; preferably all in the basin, but at a minimum at least one in the basin.

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EXHIBIT
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The locations should contain the following information for each associated Farm/Facility:

1. Name of Farm/Facility owner and Farm/Facility contact person,
2. Physical address and location (section-township-range) of Facility,
3. Contact address of Farm/Facility owner or Farm/Facility contact person,
4. Contact phone number of Farm/Facility owner or Farm/Facility contact person,
5. Whether or not one or more samples can be accessed at the Farm/Facility,
6. The physical location of each sample collection site(s) – record coordinates (latitude and longitude) of documented location (eg, corner of a field),
7. Estimate of number of animals at sample collection site or number of facilities serviced by wastewater treatment plant or septic clean out truck,
8. Estimate of the amount of feces available at the sampling site,
9. Estimate of when the feces was deposited; e.g., was the animal observed while it was defecating,
10. Observation as to whether any chicken litter application has occurred at the sampling field/site,
11. Estimates of amount, rate, and date of litter treatment applied to the site, if applicable, and information as to amount, rate and dates of application.

Site selections will be made based upon availability.

3.0 Sampling Documentation

3.1 Sampling Log Book and Sampling Forms

1. A Sampling Log Book and Sampling Forms shall be maintained.
2. Pages in the Sampling Log Book will reference specific sampling forms by use of the Sample Identification.
3. The Sampling Log Book shall be bound and shall be constructed of waterproof paper.
4. Entries in the Sampling Log Book or on the sampling form shall be made in black permanent ink.
5. Each page of the Sampling Log Book shall be dated.
6. The preparer shall initial each page of the Sampling Log book.

7. For each location sampled, the following information shall be recorded in the Sampling Log Book or on the sampling forms:
    a. Name, address and phone number of the Property/Facility owner,
    b. Identification of the Property/Facility (MAN),
    c. Name, address and phone number of the Property/Facility operator,
    d. If applicable, name, address and phone number of the Integrator responsible for the Property/Facility,
    e. If applicable, the amounts, rates and dates of prior litter/manure applications to specific fields at the Property/Facility (confirm State Reports),
    f. If applicable, the existence of prior soil sampling data for the property (yes or no),
    g. The water supply for the Property/Facility,
    h. The legal description (qtr-qtr-qtr-sec-twp-rng) of the property related to the Property/Facility,
    i. Information as to any fertilizers, chemicals or soil amendments added during the last five years,
    j. Specific information listed within this protocol,
    k. Sketch map of each property/facility with approximate dimensions; indicate local features on the sketch (vegetation, water bodies, adjacent fields, location of poultry houses, roads, old fence rows, livestock feeding areas, livestock grazing areas, etc); dimensions and features can also be placed on the aerial photographs,
    l. Land slope of property/facility,
    m. Distance to nearest water body,
    n. Notes on weather (temperature, wind, last precipitation event, etc),
    o. Type of vegetation currently on the LAL, if any, and any known vegetation grown in past 5 years,

p. Use of adjacent fields, and;

q. Other information as appropriate or relevant.

3.2 Photographic Record

A photographic record shall be made and maintained for all sampling activities on the MAN. All photographs made shall be time and date stamped.

3.3 Chain-of-Custody

A Chain-of-Custody shall be prepared for each set of samples transferred to the analytical laboratory, North Wind, Inc. in Idaho Falls, ID (see section 7).

The Chain-of-Custody shall, at a minimum, contain the following information:

1. The project name, *Illinois River Watershed Manure DNA Sampling*,
2. Name of person or entity collecting samples,
3. Signature blocks with dates and times for all persons having custody (sampler, shipper, processing laboratory, etc),
4. For each sample related to a Chain-of-Custody:
   a. The unique numeric identifier on the submitted sample container/bag (see subsequent section 6)
   b. The date and time the sample was collected,
   c. The sample "matrix" (Manure).

4.0 Manure Sampling

4.1 Manure Locations (MAN)

4.1.1 Permissible Manure and Weather Conditions

1. Manure must be fresh. Sample should be from the interior of manure piles.
2. Manure should not be sampled during precipitation events.

4.1.2 Beef Cattle Sampling Areas

Manure samples will be collected from a total of ten fields actively grazed by cattle. Five locations will be from fields within the IRW. If available, both fields with and without litter application will be sampled. Five locations will be from fields outside the IRW and, if

possible, from fields with no litter application. Two composite samples will be collected from each field. Each composite sample will consist of samples from ten fresh manure piles. In all, twenty composite samples will be collected.

4.1.3 Dairy Cattle Sampling Areas

Manure samples will be collected from the clean out slurry of four milking barns. If possible, two barns handling cattle fed by grazing and two barns handling grain-fed cattle will be sampled. The clean out slurry must consist of that day's droppings. The samples must be collected from waste stream before the collection ponds. In all, four samples will be collected.

4.1.4 Swine Sampling Areas

Manure samples will be collected from the clean out slurry from two swine facilities. The clean out slurry must consist of that day's droppings. The samples must be collected from waste stream before the collection ponds. In all, two samples will be collected.

4.1.5 Duck Sampling Areas

Manure samples will be collected from up to five landing or residence areas. Sampling locations will be from wildlife areas, golf courses, or local ponds. Two composites will be collected from each landing/residence area. Composites will consist of ten swabs or direct fecal samples each, if possible. In all, ten samples will be collected.

4.1.6 Geese Sampling Areas

Manure samples will be collected from up to five landing or residence areas. Sampling locations will be from wildlife areas, golf courses, or local ponds. Two composites will be collected from each landing/residence area. The locations may be co-located with the duck locations; however, the samples have to be distinctly separate between species. Composites will consist of ten fecal samples each, if possible. In all, ten samples will be collected.

4.1.7 Human Waste Samples

Human sewage samples will be collected at two sources: septic clean out trucks and influent to wastewater treatment plants. Sewage samples will be collected from three separate septic clean out trucks. The samples should be collected at the pump out facility after at least several homes have been visited. The sample should be collected after the pumping has been in progress and the waste in probably mixed.

Sewage samples will be collected from the plant influent at three different wastewater treatment plants. The plant operator will determine the best way to collect a representative influent sample which has not been subject to treatment. Wastewater treatment plants will be selected that do not have contribution from industries which could contribute poultry or other animal waste products (i.e. processing plants).

In all, six human waste samples will be collected.

4.2 Collection and Handling of Samples

Sampling personnel will wear disposable, sterile gloves at all times when collecting fecal samples and will change gloves before they collect each new fecal sample. Samples will either be pre-composited samples (i.e. dairy cattle, swine, and human samples) or will be composited in the field (beef cattle, duck, and geese). All samples will be collected into 20 milliliter, sterilized, polystyrene, round bottom tubes. Each tube will contain 10 mL of 20 % glycerol solution (added to the tube by the laboratory). Pre-composited samples will be collected directly into the tubes (approximately 2 - 10 grams). For the samples to be composited in the field, ten aliquots will be sampled using a sterilized, disposable, polystyrene spatula. A similar sized sample (1 -2 grams) from each individual stool will be placed into one tube. The contents will then be mixed in the field by shaking the tube containing the glycerol/waste mixture. If swabs (sterile, cotton-tipped applicators) are used to collect duck feces, all the swab tips (ten) will be placed into the same round bottom tube. The tips will be cut from the attached plastic tube (or stick) using scissors (sterilized by cleaning with an alcohol wipe before use). Labels will be placed on the tubes and secured with transparent tape. The tubes will be placed inside individual resealable plastic bags. The bags will be placed in a cooler containing dry ice before leaving the property/facility where the sample was collected. The samples must be frozen prior to being shipped to the analytical laboratory. If the samples have not been frozen by exposure to the dry ice, they shall be placed in a freezer until freezing is complete. Samples will remain frozen until immediately prior to shipping. Samples shall be placed in a cooler with standard ice and shipped priority overnight to the analytical laboratory.

4.3 Field QA/QC Samples (Manure)

1. Duplicates: no field duplicate samples will be created since samples will be composite samples.
2. Blind Standard: no blind standards will be submitted for this particular program.
3. Decontamination Blank: no decontamination blanks will be generated for this particular program as all collection equipment will not be reused between samples.
4. Field Blanks: field blanks will be collected at a rate of one per twenty or per sample shipment. Field blanks will be collected by one of three methods.
    a. Dairy Cattle, Swine, and Humans – one field blank associated with one of these locations will be collected by opening the screw top cap and immediately replacing the cap. The tube will contain the glycerol from the laboratory.

b. Beef Cattle and Geese – one field blank associated with one of these locations will be collected by opening a packet containing a sterilized collection spatula and placing it directly into the screw cap tube containing the glycerol.

c. Duck – one field blank associated with one of these locations will be collected by placing a swab tip directly into the screw cap tube containing the glycerol.

4.4 Decontamination Procedures

Sampling equipment will be one time use. No equipment decontamination is anticipated. Only the scissors will be reused and these will be cleaned with an alcohol wipe between sampling sites.

If appropriate, bio-security decontamination measures will be implemented. All waste generated during the sampling procedure will be placed in disposable trash bag and placed in a container where the waste will be transported to a sanitary landfill.

5.0 Person(s) Collecting Samples and Observing Sampling

Personnel from CDM or Lithochimeia will conduct the manure sampling from each MAN. CDM personnel will process samples, chain-of-custody, coordinate shipping, etc.

6.0 Identification of Samples

Identifying information to be recorded on the sample label for DNA Manure samples:

1. Beef Cattle: Alphanumeric identification will consist of MAN-BC-1, MAN-BC-2 etc. The log book will be used to record the facility/property and location of each composite sample.
2. Dairy Cattle: Alphanumeric identification will consist of MAN-DC-1, MAN-DC-2 etc. The log book will be used to record the facility/property and location of each composite sample.
3. Swine: Alphanumeric identification will consist of MAN-SW-1, MAN-SW-2 etc. The log book will be used to record the facility/property and location of each composite sample.
4. Duck: Alphanumeric identification will consist of MAN-DK-1, MAN-DK-2 etc. The log book will be used to record the facility/property and location of each composite sample.
5. Geese: Alphanumeric identification will consist of MAN-GS-1, MAN-GS-2 etc. The log book will be used to record the facility/property and location of each composite sample.

6. Human: Alphanumeric identification will consist of MAN-HM-1, MAN-HM-2 etc. The log book will be used to record the facility/property and location of each composite sample.
7. If necessary, an alphanumeric identification will be assigned to a subarea if more than one sample is collected from the same facility/property: A, B, C, D etc.
8. The following sample number is an example of a manure sample taken from Beef Cattle field number 5, sampling area B:

   MAN-BC-5-B

9. For samples submitted to the analytical lab, additional alphanumeric identification of the type of sample will be added to the end of the identification number:
   a. F = Field Blank
10. Date of sample collection (only on chain-of-custody),
11. Time of sample collection (only on chain-of-custody),
12. Initials of the person collecting the sample (only on chain-of-custody).

7.0 Shipment of Samples to the analytical laboratory

1. Shipping coolers will be packed such that samples are stored with standard ice placed in double-bagged resealable plastic bags. The shipping coolers shall be insulated protective containers.
2. If possible, samples shall be shipped immediately via overnight shipment to the analytical laboratory. The laboratory address is:

   Idaho State University

   Department of Biological Sciences- MRCF
   Attn: Erin O'Leary-Jepsen

   650 Memorial Drive
   Pocatello ID 83209-8007
   208-282-4890
3. In no event, shall samples be held more than 24 hours before shipment unless they are frozen.
4. Samples shall be sent to the laboratory under a Chain-of -Custody.
5. A custody seal will be place on the outside of the container across the area between the lid and the container. The custody seal will be signed.

6. The Chain-of-Custody shall be sealed in a plastic bag and placed within the insulated protective container holding those samples to which it refers.

8.0 Analytical

8.1 Analytical Protocols

Analyses are being conducted by Tamzen W. Macbeth (208-528-8718), North Wind, Inc., 1425 Higham St., Idaho Falls, ID 83402. Analytical protocols are provided in a separate document.

8.3 Data Reporting

1. Data from the laboratory shall be reported in both electronic and paper reports.
2. Data reports shall include all quality control data generated, including results for duplicates, blanks and spikes, as applicable.
3. Data reports shall include a copy of the Chain of Custody accompanying each set of samples submitted

9.0 Bio-security, Decontamination of Equipment and Personal Protective Equipment

All persons engaged in sampling, observing sampling or documenting sampling under this protocol shall follow appropriate bio-security precautions.

9.1 Manure

To the extent possible, disposable sampling equipment should be used.

Any reusable sampling equipment shall be decontaminated using a non-phosphate detergent, bleach and three de-ionized water rinses between Sampling Areas. No reusable equipment is currently anticipated.

9.2 Health and Safety Plan:

The overall health and safety plan for the project will be used for this sampling protocol and will be reviewed by all samplers.

10.0 Revised Dates*

The following revision dates are applicable to this SOP:

Revision 1 –July 11, 2006

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August 29, 2007

VIA E MAIL AND U.S. MAIL

Louis W. Bullock
Miller, Keffer, Bullock & Pedigo LLC
222 S. Kenosha Avenue
Tulsa, Oklahoma 74120

Dear Louis:

Re: Oklahoma, et al. v. Tyson Foods, Inc., et al.

This letter is intended to memorialize defendants' serious concerns with the manner in which the State has conducted its "court-ordered scientific production." In our view, the State continues to intentionally delay the production of sampling data and related documents in an effort to deprive defendants and their experts of the time necessary to review and evaluate these materials prior to the current February 1 deadline for defense expert reports. Moreover, our review of the materials produced to date have identified numerous instances of what we believe to be incomplete or missing data or materials. The defendants' concerns, outlined in more detail below, are serious matters which must be addressed immediately by the State. The State's actions have already prejudiced the defendants to the degree that some of the deadlines in the current scheduling order will need to be revisited. Any continued delays by the State in addressing these matters will only further delay the timetable for completing this litigation.

I. The State's Obligations Under the January 5, 2007 Order

In its January 5, 2007 Order, the Court ordered the State to produce "monitoring, sampling, and testing data performed by Plaintiffs and related documents" that the State had put "at issue" in the case. *See* January 5, 2007 Order at 8. The Order also required the State to produce the documents included in its "offer of voluntary production" made during oral arguments on December 15, 2006, which was to include the following category of documents requested in Cobb-Vantress' first set of written discovery:

1. For each instance of sampling, monitoring or testing:
   (a) the date and location of sampling;
   (b) the name, address, and telephone number of each person involved in sampling;

EXHIBIT
4

(c) the media or material sampled, and
(d) all tests or laboratory analysis performed.

2. Copies of all sampling, monitoring or testing documents, which includes laboratory results, assay reports, QA/QC documents, sampling protocols, photographs, maps and site sketches.

3. Copies of all documents relating to the scientific investigation of groundwater contamination which includes laboratory results, assay reports, QA/QC documents, sampling protocols (unless developed by an attorney), photographs, maps and site sketches.

Id. at 9.[1] The Court further ordered that the State:

> shall produce all documents identified by Plaintiffs and the Court by February 1, 2007. Within one week of producing all of the documents identified by Plaintiffs and the Court, Plaintiffs shall prepare a supplemental privilege log which identifies all documents which Plaintiffs continue to claim as privileged which Plaintiffs have not produced.

Id. at 11 (emphasis added).[2] Finally, the Court indicated that "[a]fter the defendants have reviewed the production ordered herein and the revised privilege log... the Defendants may reurge their motion to compel further production if they think it necessary and appropriate." *Id.*

II. State's "Rolling" Production

The State did not complete its production of sampling data and related documents by February 1. Rather, the State has dribbled information and materials out to the defendants in seven separate installments (February 1, February 8, March 6, May 1, May 21, July 2 and August 7). In recent conversations, you have confirmed that the August 7 production is not the last production planned by the State. You further indicated that the State's "court-ordered production" is expected to continue over the next several months. The State has refused to indicate when this production will be complete.

---

[1] The Court also ordered that the documents submitted by the Plaintiffs for *in camera* inspection by the Court were to be produced as being included within the Plaintiffs' offer of voluntary production. *Id.* at 10.

[2] This deadline, as it pertained to the production of field notebooks, was extended to February 8, 2007 by an unopposed motion.

In your February 1, 2007 production, you indicated that "[o]n an ongoing basis, we will be supplementing this production on the first of each month and data not included in this production will be produced as the QA/QC information is completed." *See* February 1, 2007 letter from L. Bullock to R. George at 1. Nothing in the Court's January 5, 2007 Order allows the State to withhold monitoring, sampling and testing data until it has been fully QA/QC'd. Instead, the State should have produced all monitoring, sampling and testing data by February 1 for existing data, and should have produced, on an ongoing basis, additional data as it was generated. Once QA/QC packages and validated data reports were generated, the State should then have supplemented its earlier production.

The work of Defendants and their experts in reviewing the State's sampling data and test results can not begin in earnest until we have a complete set of the State's data. The end result (and likely the goal) of the State's never-ending, piecemeal, rolling production of sampling data is to limit defense experts to one or two months (at best) to review sampling data and test results which it took the State and its experts almost two years to generate. This is unacceptable to the defendants.

The State, therefore, should produce any and all monitoring, sampling and testing data, and related documents currently in its possession that have not yet been produced. Going forward, the State should produce any new data in its possession on the first of each month. The State should then supplement its production of any previously produced data as QA/QC reports and validated data reports are generated.

III. Categories of Sampling Data and Materials Still Being Withheld by the State

Obviously, defendants do not know the precise nature of all data and materials which the State has withheld. However, based on our prior conversations and information otherwise available to defendants, we are aware of several categories of data, described below, which the State is continuing to withhold. This data and related documents must be produced immediately.

A. DNA/Microbial Source Tracking Test Results

We have discussed on numerous occasions the fact that the State has collected and analyzed samples under a protocol which the State believes will allow it to "track" or "fingerprint" substances found in water back to poultry litter application sites.[3] In these conversations, the State has boasted about the "revolutionary" nature of this work. It is obvious

[3] *See* March 5, 2007 letter from R. George to L. Bullock; May 1, 2007 letter from L. Bullock to R. George; July 3, 2007 e mail from R. George to L. Bullock; August 2, 2007 e mail from Richard Garren to R. George.

that the State views this work as central to its "scientific" case against the defendants. Despite all the rhetoric about this work, the State has refused to provide the defendants with any of the test results or documents related to the collection, handling or testing of samples under the State's "fingerprinting" protocol. Any continued withholding of these materials is highly prejudicial to the defendants.

Over the course of our discussions, the State has consistently promised to produce this data and related materials but the projected date of production varies with each conversation. Initially, you orally promised to produce this data "before the summer" of 2007. However, in your May 1, 2007 letter, you stated that "the best that I can tell you at this time is that we are within thirty to sixty days of having the [method] completed. As we have promised, once the testing methodology is completed, it will be provided to you." *See* May 1, 2007 letter from L. Bullock to R. George. Sixty days later, on July 3, I wrote to you again to determine the status of the State's promised production. In that e mail, I again requested a copy of the revised Standard Operating Procedure (SOP) related to the State's DNA investigation, which you had indicated would be produced soon. In addition, I reiterated our request that you immediately produce the field collection, chain of custody and laboratory analysis documents related to any prior sampling or testing that may have occurred as part of the DNA investigation. *See* July 3, 2007 e mail from R. George to L. Bullock.

In an August 2, 2007 e mail from Richard Garren, the State indicated that it will not produce the SOP or supporting data for its DNA investigation until sometime in September. Mr. Garren stated that he information would be withheld until "we [the State] have determined the extent to which it is possible to track poultry waste using DNA," and that it would only be produced at this indefinite future date if the parties agree upon a "suitable protective order" because the "method developed for using DNA to track poultry waste through the environment is proprietary and warrants particular protection." *See* August 2, 2007 e mail from R. Garren to R. George and M. Bond. Again, as explained above, the State cannot withhold the SOP or data that has been collected as part of the DNA investigation, on the grounds that the State has not yet determined whether it is useful data. Further, we do not agree that the Court's January 5, 2007 Order requires the parties to enter into a protective order before the State must produce this data.

The data related to the State's purported "DNA investigation" has been withheld for far too long. It must be produced immediately.

B. Sediment Geoprobe Groundwater Sampling Data

The defendants recently learned from a source outside of this lawsuit that the State has conducted sediment or geoprobe groundwater sampling events in the Oklahoma portion of the watershed for which we have received no data. I wrote to you about this subject in my letter of July 9, 2007. Attached to that letter was a map showing the locations where these samples were

reportedly collected. The State still has not produced the data and documents related to these sampling events.

In his August 2, 2007 e mail, Mr. Garren confirmed that the samples at issue were geoprobe groundwater samples collected pursuant to the SOP at Bates Number STOK 0022191. *See* August 2, 2007 e mail from R. Garren to R. George. In that e mail, Mr. Garren stated that the geoprobe data will be produced "after the lab has done its analysis, and CDM's internal lab has completed its QA/QC." *Id.* As explained above, the Court's January 5, 2007 Order does not allow the State to delay production pending completion of the QA/QC process. Instead, the State should produce this geoprobe data now, and should supplement its production once the QA/QC process is complete.

C. Data and Sampling Documents Still Listed on the State's Revised Privilege Log

On February, 8, 2007 the State produced a revised privilege log. Included on that privilege log were the following items:

Item No. 213. Digital data, GIS (ArcView) files for the Illinois River Watershed and immediately surrounding areas from 2004 and 2005, authored by Lithochimeia, Inc.

Item No. 214. Digital data, analysis of agricultural census data for Arkansas and Oklahoma, authored by Lithochimeia, Inc.

Item No. 215. Field notes, sediment sampling locations from 2005, authored by Lithochimeia, Inc.

Item No. 216. Photographs and digital photographs with included text, sediment sampling locations from 2005, authored by Lithochimeia, Inc.

Item No. 217. Standard Operating Procedures (SOPs), Section 5.3 and portions redacted.

Item No. 218. Manure sampling protocol, Section 5.3 and redacted portions.

Pursuant to the Court's January 5, 2007 Order, GIS data, agricultural census data, sediment sampling locations, SOPs and sampling protocols must be produced. The State has offered no valid justification for why this information can be withheld in light of the Court's January 5, 2007 Order The State should produce this information immediately.

D. QAPPs and Validated Data Reports

Pursuant to the Court's January 5, 2007 Order, the State was required to produce all sampling, monitoring or testing documents, including documents relating to quality assurance and control and sampling protocols. The State, however, has not produced the following types of documents to date:

1. **Quality Assurance Project Plans.** We have not yet received a copy of the State's Quality Assurance Project Plans (QAPPs) for the sampling conducted to date.

2. **Validated Data Reports.** We have not yet received a copy of any validated data reports.

The above-described materials should be produced immediately.

IV. Incomplete Productions or Missing Information

In addition to the categories of information described above which the State has withheld entirely, we have identified numerous "gaps" or instances of incomplete or missing information within the documents already produced. As you know, the State has conducted its "rolling" production of "court-ordered" materials in an unorganized manner. We believe this disorganization by the State is intentional and designed to hamper the defendants' ability to efficiently review and analyze these materials. Nonetheless, defendants have done their best to wade through the shuffled morass of documents to confirm that the production is complete. We are disappointed to have now realized that the production is far from complete. The reminder of this letter describes areas of the State's production which appear to be incomplete:

A. GPS Coordinates and Sampling Location Information

Pursuant to the Court's January 5, 2007 Order, the State must provide the location of sampling for each instance of sampling, monitoring or testing.

Recall that defendants first raised concerns about the completeness of the State's production of sampling locations in February, 2007. *See* February 28, 2007 letter from R. George to L. Bullock. I wrote to you again concerning this subject of April 24, 2007. In response to those concerns, you finally responded in an April 25, 2007 letter that "with only some minor exceptions, we are confident that our production is complete as to coordinates" and that you would be "supplementing our previous production with coordinates from our sample sites..." but the "only exception to this will be the coordinates for the sediment sampling. It will be produced in the following month's production. The Bates numbers for the field notes

concerning that sediment sampling are contained in OK-PL 5864-5946." *See* April 25, 2007 Letter from L. Bullock to R. George.

It was not until May 21, 2007 that the State finally produced additional sampling location information. *See* May 21, 2007 e mail from L. Bullock to R. George. However, to date, we are still missing GPS coordinates for the sediment sample locations identified on the State's privilege log and discussed in Section III(C) above and for the following samples:

Sample Id	Sample Id
SP-Jones-012307 filtered	GW-Madwell-012307 Non-Filtered
GW-Kindle-012307 Filtered	GW-McAlpine-012307 Non-Filtered
GW-Madwell-012307 Filtered	GW-Reese-012307 Non-Filtered
GW-McAlpine-012307 Filtered	GW-Jones-012307 Non-Filtered
GW-Reese-012307 Filtered	GW-Beaver-012207 Non-Filtered
GW-Jones-012307 Filtered	GW-IGO-012207 Non-Filtered
GW-Beaver-012207 Filtered	GW-McCoy-012207 Non-Filtered
GW-IGO-012207 Filtered	GW-E-Ames-012207 Non-Filtered
GW-McCoy-012207 Filtered	EOF-222-041307
GW-E-Ames-012207 Filtered	EOF-259-041307
SP-Jones-012307 Non-Filtered	RS-68-032907
GW-Kindle-012307 Non-Filtered	SD-001
SD-002	SD-03
SD-04	SD-04
SD-05	SD-07
SD-08	3*
0.02 Spring*	37824*
13861*	65461*
RS-0000114	RS-0000176
RS-0000222	RS-0000244
RS-0000322	RS-0000333
RS-0000337	RS-0000413
RS-0000419	RS-0000450
RS-0000675	RS-0000711

Sample Id	Sample Id
RS-0000712	RS-0000785
RS-0009010	RS-0000017
RS-0000105	RS-0000356
RS-0000512	RS0000798

Samples denoted with an asterisk (*) in the above chart were identified in field notebooks produced by the State. *See* STOK0000937-STOK0001037. If the State has produced GPS coordinates for the samples identified in the table above, please direct us to where this information exists. Otherwise, the State must supplement its earlier production with the GPS coordinates for these sample locations.

In our attempt to review the data produced to date, it appears to us that different sample identifiers were used by the State for the same samples. The same sample may be referred to as a different number when used in a field notebook, compared to how it is reported in a lab sheet, and/or compared to how it is described when additional information is produced about that sample (such as GPS coordinates). For example, it appears that Sample Number 16837 in the State's field notebooks (*see* STOK0000937-STOK0001037), is referred to as Sample Number GW-40 by the State in relation to the lab reports and GPS coordinates for that sample. The use of multiple sample identifiers has prejudiced the defendants in their review of the data produced to date. While we understand that the State has produced some correlation information, to match up different sample identifiers, we do not believe the State has provided such correlation information for all samples and sample locations. Obviously, the State and its consultants have a key or chart that correlates sample numbers used in field notebooks with sample numbers shown on lab reports. Please produce a complete correlation table for all samples.

B. Missing SOPs

While the State has produced a number of written SOPs for the various sampling and testing conducted in the watershed, there are several types of work for which we have sampling data but no governing SOP. These include:

1. sediment cores collected by the State in 2005 (STOK0019558)

2. the sub-bottom survey conducted by the State (STOOK0019501)

3. the 2004 sediment grab sample collected by the State (STOK0019461)

4. the BIOSEP Bead data collected by the State (STOK0020402)

5. the sediment toxicity samples collected by the State (STOK0015176) and

6. the DNA "fingerprinting" or microbial source tracking program.

If these SOPs exist, they must be produced.

C. Fish Kill Data

Field notebooks produced by the State refer to a fish kill in the Illinois River in April 2006, and entries note that algae, water, and fish samples were collected. The State should have produced all chemical analyses for the following samples, as well as all other fish data and fish information collected in the IRW:

ILL-FK-A1 (STOK0000089)
ILL-FK-P1 (STOK0000089)
ILL-FK-A2 (STOK0000089)
ILL-FK-P2 (STOK0000090)
ILL-FK-P3 (STOK0000090)
ILL-FK-P3 (STOK0000090)
ILL-FK-A3 (STOK0000090)

If the State did produce this information, please direct us to where the information exists. Otherwise, the State must supplement its earlier production to include this information.

D. Benthic Macro-invertebrate and Periphyton Data

1. Complete Sampling and Location Information for Benthic Macro-invertebrates. The State's SOP 7-3 (Benthic Macro-invertebrate Sampling) indicates benthic organism collection was planned using fine-meshed dip nets and benthic seines. The 2005 benthic macro-invertebrate field data sheets (STOK0016943–STOK0017146) contain selected handwritten notes such as "300 individuals picked from riffles" and "1 m^2 kick net" indicating that individual benthic samples were collected at these stations. While we have received notebooks containing tallies of benthic invertebrates at the family taxonomic level (STOK0000170–STOK0000256), it appears that we have not received complete benthic macro-invertebrate data. The State must produce all sampling and location information for each of these benthic collection sites and for all other benthic organism studies.

2. Readable Benthic and Periphyton Data. The handwritten notes produced regarding benthic and periphyton surveys conducted by the State are unreadable. We therefore

request copies of the State's electronic version of these survey data for the following sample locations and any other sample locations where periphyton or benthic data were collected:

Periphyton and Rapid Periphyton Survey Data Station ID	Benthic and Rapid Bioassay Data Station ID
BS-08	BS-28
BS-117	BS-62A
BS-208	BS-HF04
BS-28	BS-HFS-22
BS-35	BS-REF2
BS-62A	BS-REF3
BS-68	
BS-HF04	
BS-HF28A	
BS-HFS-22	
BS-REF1	
BS-REF2	
BS-REF3	

E. Maps

The State must produce all maps created related to any sampling, monitoring or testing or conducted, including the following:

1. Sample Location Maps. The field notebooks produced by the State indicate that maps were available showing the station locations where samples were collected, but the maps were not produced. The State must produce any maps identifying sample locations.

2. Isopach Maps. With respect to the sub-bottom survey conducted by the State, the State has not yet produced the Isopach map that is mentioned in the electronic file produced by the State (Tenkiller Report.rtf (at pg. 1)).

F. Sediment Data (2004/2005)

It appears that the State has failed to produce complete sediment core data and other sediment sample data. The State must produce the following data, to the extent it exists:

1. 2005 Sediment Core Data. With respect to sediment cores collected by the State in 2005, the State has not yet produced:

- data and sampling information for cores 00 and 05 (which are mentioned in field notes) (STOK0019572);

- particle size data for the cores; and

- the following appendices for the 2005 sediment core data reports:
  Appendices 1, 2, 3, 6 (Core 1) (STOK0019574)
  Appendix 6 (Core 2) (STOK0019651)
  Appendix 2, 3, 6 (Core 3) (STOK0019774)
  Appendix 2, 3, 6 (Core 4) (STOK0019859).

2. **Incomplete Sediment Sample Data.** It appears that we have not received all of the sediment sample data collected by the State. The identification numbers for the sediment samples go up to SD-515, suggesting that 515 samples were taken, but we only received data for approximately 117 sediment samples. Please confirm that only 117 sediment samples were analyzed or produce the results for the remaining 398 sediment samples immediately.

G. BIOSEP Bead Data

The field notes we received indicate that BIOSEP bead data has been collected (STOK0020402), but it does not appear that the State has produced this BIOSEP bead data. Pursuant to the Court's January 5, 2007 Order, this data should have been produced. The State, therefore, should either direct us to where this data is in the productions made to date or supplement its earlier productions with this data.

H. Incomplete Automated High Flow Sampling Data

In SOP 2-1, the State references its plan to use ISCO automated samplers to: 1) directly measure and summarize flow-weighted concentrations of key pollutants of concern associated with runoff events in small watershed tributaries, and; 2) investigate potential correlations between these concentrations and land use characteristics, poultry operations, and storm event hydrograph characteristics. While we received velocity data from this sampling effort, we have been unable to locate storm hydrographs that provide height and width information or direct width measurements taken at the ISCO samplers in the State's production. Without this information, it is impossible to interpret the State's reported results. The State, therefore, should either direct us to where this data is in the productions made to date or supplement its earlier productions with this data.

I. QA/QC Lab Packages

While we recognize that certain QA/QC information has been produced by the State, it does not appear that the State has produced QA/QC reports for all samples analyzed for each lab. The State must direct Defendants to where complete QA/QC information may be found within the State's productions to date or immediately supplement its production with QA/QC lab packages for each sample analyzed.

J. Chain of Custody Forms

It appears that the State has not produced complete chain-of-custody forms for its labs (GEL, Aquatic Research, Inc, Aquatec Biological Services, Great Lakes Environmental Center, Alpha Woods Hole Analytical, Water's Edge Scientific, Jeff Janik, and Reservoirs Environmental) for all samples collected and analyzed. For example, attached to this letter is a lab report from Great Lakes Environmental Center for which we are unable to locate a corresponding chain of custody form. This is merely one example of many instances in which we have been unable to find chain custody forms. The State must produce all chain of custody forms for all samples analyzed or direct us to where they are located in the information produced to date.

Again, we recognize that it is possible that we have overlooked some data that may have been produced by the State due to the format in which the information was produced. The defendants therefore request the opportunity to meet and confer with the State about these issues next week. To the extent the State has already produced any of the information described above, we ask that you please direct us to where the information is located in the documents and files the State has produced to date. To the extent the information described above has not been produced and the State is unwilling to produce it immediately, we regrettably will have no choice but to file a motion to compel compliance with the Court's January 5, 2007 order.

We would appreciate your response to these concerns as soon as possible including, of course, a proposed date and time when we might meet and confer concerning these issues. I look forward to your response.

Sincerely,

Robert W. George

Cc: Counsel of Record (via e mail)

mkbp
Miller Keffer Bullock Pedigo
Attorneys and Counselors

September 19, 2007

Robert George
Kutak Rock LLP
214 W Dickson St
The Three Sisters Building
Fayetteville AR 72701-5221

(Via email and FedEx)

Re: *State of Oklahoma v. Tyson et al.*,
No. 05-CV-0329-TCK-SAJ

Dear Robert:

Your letter of August 29, 2007, incorrectly characterizes the Plaintiff's production of it sampling data. Your charge that we did not complete our production as ordered, but "dribbled information and materials out to the defendants in seven separate installments" is a gross mischaracterization of our production. While it is true that there have been repeated supplements of our initial production, this is because as new data has been developed, it has been produced. It is our intent to continue to produce the data as it becomes available from our scientists until all of the data is produced.

Frankly, I do not understand your complaint that it is prejudicial to the Defendants for us to provide you the data at the point where it completes our internal QA/QC review. It is only at that point that the data becomes available to our scientists and eligible for inclusion in their analysis. The suggestion that Defendants are prejudiced unless they get data before Plaintiff's own scientists receive it is absurd. By providing it to you in this manner, we are meeting both the spirit and the letter of the Court's order.

As for your more specific issues, I will address them in the order in which you raised them:

III. Categories of Sampling Data and Materials Allegedly Being Withheld:

A. DNA/Microbial Source Tracking Test Results

I have discussed with my client the issue of whether to claim a proprietary interest in this method. While it is the result of what are well-established scientific methods, the application of these methods to tracking bacteria from poultry waste as it moves through the environment appears to be a significant advance in the traditional ways of tracking such waste. Even so, my client has determined not to make a proprietary claim on this

method. There may be other states or municipalities who might wish to use this method to help them hold your client or other poultry integrators accountable for the damage done to their waters by the waste disposal methods employed by Tyson and others. The State has determined that it will not act in a manner to diminish such use.

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Contrary to your assertion of prejudice by the timing of this production, providing this information and data at this time is a great benefit to the defendants. It is well in advance of the Court's schedule for the production of expert reports and will give you an advanced look at what might be presented to the Court.

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You appear to be under a misperception that our Geoprobe work has been directed at collecting sediment cores. We have not collected or analyzed sediments in connection with our Geoprobe sampling and therefore you will not be receiving any analysis of sediments from this effort. We have collected some water samples; and when the data has completed our internal QA/QC review, it will be provided. I checked with the CDM lab and they have not received the completed reports from the outside labs. In response to your great interest in this data, the CDM lab has asked the labs to expedite their processing of the water collected. I will provide that at the earliest possible time.

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A. GPS Coordinates and Sampling Locations Information: As your letter indicates, on May 21 we provided you with the coordinates for approximately 354 sampling locations. As to the locations which you have questions about, I have made inquiries and will provide the information to you as soon as it is received.

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D. Benthic Macro-invertebrate and Periphyton Data:

1. Sampling and Location Information: The additional data which was not included is being assembled and will be provided.

2. Readable Benthic and Periphyton Data: You indicate that some of the data sheets regarding this are unreadable. If you will indicate which ones, I will see that you have readable information.

E. Maps:

1. Sample Location Maps. It is not clear what you are referring to when you reference maps. We have previously provided the aerial photo, and the blowups of that photo on which the sampling grids for soil sampling were laid out. As you indicate, you have also found maps in the field books. For example, in the Field Books for the 2005 Sediment Sampling, which you apparently overlooked, there are numerous maps. We did not keep road maps and other driving directions. I believe that we have produced all of the maps which were retained as part of our sampling program.

2. Isopach Maps. The Isopach Map is attached. See Disc STOK_CD16.

F. Sediment Data (2004/2005)

1. Sediment Core Data: There was no analysis of Cores 00 and 05. Similarly, there has not been any particle size data collected as to the Cores. As for the

Appendices, I have attached a complete copy of the reports and the appendices. See STOK_CD17 (28872-29424).

2. Incomplete Sediment Sample Data. Your letter suggests that you understand there were up to 515 possible sediment sampling locations that were considered. As indicated by your analysis, we analyzed only approximately 119 samples from these locations. You have all of the data concerning the analysis of these samples.

G. BIOSEP Bead Data: This is attached. See Disc STOK_CD17 (28851-28871).

H. Automated High Flow Sampling Data: The height and width information which you seek is in the field books.

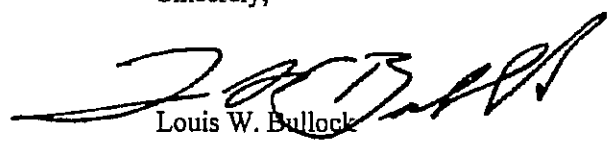
I. QA/QC Lab Packages: We are reviewing all of the labs which you listed suggesting incomplete QA/QC reports. We will supplement to the extent that any of the reports are missing this information.

J. Chain of Custody: Other than pointing to one instance, you do not identify where there is not a complete chain of custody. In spite of that, we are conducting a complete review of this and will provide chain of custody information where needed.

We have produced a massive quantity of data and, contrary to your assertions, it has been well organized and presented in a timely manner. It is true that due to the fact that it has been produced as it has been developed, it has not been organized as it would have been had you waited for the data to be completely assembled and then produced. It is also true that we have not done the data entry task for you. But even there, we have assisted you to a great extent by providing a spread sheet with the sample identifications and locations; and consistent with that, we will provide information concerning the sample locations you asked about. I am confident that we have met not only the letter but the spirit of the Court's order.

If, after reviewing this letter, you conclude that it does not answer your questions adequately, we should schedule a meet and confer so that we have an opportunity to fairly resolve your concerns.

Sincerely,



Louis W. Bullock

KUTAK ROCK LLP

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robert.george@kutakrock.com
(479) 973-4200

October 7, 2007

VIA E MAIL AND U.S. MAIL

Louis W. Bullock
Miller, Keffer, Bullock & Pedigo LLC
222 S. Kenosha Avenue
Tulsa, Oklahoma 74120

Re: *Oklahoma, et al. v. Tyson Foods, Inc. et al.*

Dear Louis:

As you know, the State has only recently begun producing information regarding its "DNA analysis" or "microbial source tracking" work in the watershed. To date, Defendants have only been provided with 14 pages of documentation relating to this work: STOK0020854 – STOK0020862 (Manure Sampling SOP for DNA Analysis) and STOK0029428-STOK0029432 (Northwind Poultry Quantitative PCR Analytical Summary). The purpose of this letter is to notify the State of several concerns that defendants have based upon the review of the limited information produced relative to this work and to request certain assurances from the State regarding future productions and the preservation of documents and samples.

Defendants continued to be troubled by the obvious delays in the production of sampling or testing data. The Manure Sampling SOP for DNA (SOP 5-3) Analysis was first prepared in April 2006 but that document was not produced by the State until September 19, 2007. The Northwind PCR Analytical Summary confirms that the State began collecting samples as part of its microbial source tracking work in February 2006, but the State failed to produce any information relating to that work until September 27, 2007. An 18 month gap between the collection of samples and the production of data is severely prejudicial to the defendants.

The Manure Sampling SOP for DNA (SOP 5-3) indicates that 52 fecal samples from non-poultry sources (beef cattle, dairy cattle, swine, geese, ducks, humans) were to be collected from the watershed and subjected to fragmented PCR DNA analysis. To date, the State has not produced the results of those tests or documents related to the collection, handling or testing of those samples. Please produce all documents and data related to the collection and testing of these 52 fecal samples immediately.

EXHIBIT
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The Northwind PCR Analytical Summary provides results of the State's testing of 31 water, soil or litter samples for brevibacteria through a method that is described as a quantitative polymerase chain reaction. These 31 samples do not appear to be non-poultry fecal samples collected under SOP 5-3. In addition, the testing described in the Northwind summary is an entirely different method than the one described in SOP 5-3. Please produce the sampling SOP under which the 31 samples identified in the Northwind summary were collected.

Finally, please confirm that the State has preserved all water, soil, litter and fecal samples collected as part of its DNA/Microbial Source Tracking efforts in the watershed including, but not limited to, the 52 fecal samples collected under SOP 5-3 and the 31 samples identified in the Northwind summary. The State and its consultants also may have grown or otherwise propagated materials from the samples it collected (such as bacteria cultures, colonies, or mixtures). The failure of the State to preserve the 52 fecal samples and any propagated materials derived from these samples for Defendants' examination and testing would clearly amount to spoliation of evidence. Defendants likely will request production of the preserved portions of these samples and any propagated materials for appropriate testing and analysis. If the State has not preserved these samples and propagated materials or believes that defendants are not entitled to obtain these samples or materials for their own testing, please let me know immediately. Otherwise, once I have been educated on the preservation, storage and handling procedures necessary for a transfer of these samples and propagated materials, I will be in touch to discuss the timing and logistics of such a transfer.

I appreciate your attention to these matters. If you have questions or concerns, please do not hesitate to contact me.

Sincerely,

Robert W. George


BIOSEP

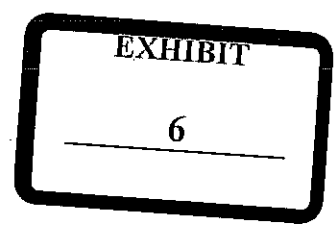


EXHIBIT
6

BIOSEP

"Rite in the Rain"®
ALL-WEATHER
FIELD
No. 351

"Rite in the Rain®"
ALL-WEATHER WRITING PAPER

Name J. B. FISHER
LITHOCHIMEIA

Address

Phone

Project

Clear Vinyl Protective Slipcovers (Item No. 30) are available for this style of notebook. Helps protect your notebook from wear & tear. Contact your dealer or the J. L. Darling Corporation

CONTENTS

PAGE	REFERENCE	DATE

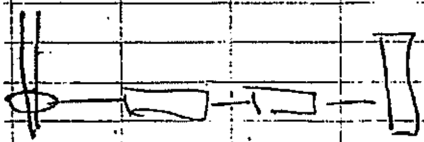
DEPLOY BIO SEP BEADS

3/23/06

JBF, KLS

TRAPS DEPLOYED AS PRACTICABLE UPSTREAM OF HFS WATER COLLECTION BETWEEN TWO RE-BAR IN STREAM BOTTOM

> FLOW



HFS 26 06:50

SNOW ON GROUND; WATER CLEAR FR 1259-1265

HFS 04 07:20

SNOW ON GROUND; WATER CLEAR, ALGAE ON STREAM GRAVEL FR1266-1272

SPRING @ 36.19851/94.57319 HEAVY ALGAE GROWTH & MACROPHYTES FR 1273-1280 07:40

HFS 02 08:22 WARMING BUT SNOW ON GROUND FR 1281-1288

SPRING @ 36.25680/94.26041 @ 08:54 FR 1289-1299 HEAVY FLOATING MACROPHYTES

HFS-16 09:15
WATER CLEAR; LIGHT COVER
ON BOTTOM; FR 1300-1301

HFS-14 10:00
WATER CLEAR; MINIMAL ALGAE
COVER ON ROCKS FR 1302-1308

HFS-05 10:38
WATER CLEAR; SOME ALGAE
ON STREAM BANKS FR 1309-1315

HFS 23 12:10
WATER SL MURKY, SILTY BOTTOM
W/ ALGAE FR 1320-1326

HFS 24 12:37
WATER CLEAR W/ SILTY COVER
ON BANKS FR 1327-1331

HFS-28 13:05
WATER CLEAR, MINIMAL ALGAE
ON ROCKS FR 1332-1334

HFS 27 13:40
WATER CLEAR MINIMAL ALGAE
ON ROCKS FR 1337-1338

HFS 28 14:10
WATER CLEAR MINIMAL
ALGAE ON ROCKS FR 1337-1344

OKG DOCK 12 15:15 FR 1345

3/23/06

SPAW6 13:30

36.07557 / 94.58252

FLOAT MACMOATM TIME FR 1330 – 1336

END 3/23/06

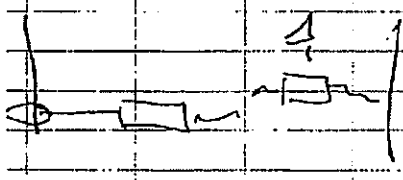
Pick up HFS

BIOSEP 4/27/06

JBF, KLS

Remove Downstream trap only

Flow



HFS 26 08:10

Algal growth on gravel

Ans growth on trap

Fr 1486 - 1489

HFS 04 08:52

Algal growth on gravel

Light growth on Ans trap Fr 1490 - 1495

HFS 02 09:32

Filamentous algal growth on bottom Fr 1496 - 1498

HFS 16 10:03

Leaves on stream bottom that has obvious growth

Fr 1499 - 1503

HFS 14 10:38
LIGHT ALGAL GROWTH; TRAP SHOWS EVIDENCE OF GROWTH
FR 1504-1508

HFS 05 11:15
LIGHT FILAMENTOUS ALGAL GROWTH; TRAP SHOWS GROWTH
FR 1509-1513

HFS 23 12:06
WATER MONKEY; BOTTOM SHOWS FILAMENTOUS ALGAL GROWTH
TRAP SHOWS GROWTH
FR 1514-1517

HFS 21 12:36
LIGHT ALGAL GROWTH ON BOTTOM, TRAP SHOWS LIGHT GROWTH FR 1518-1521

WASTE SPREADING @ ~13:30

35.98301 / 94.49214

FR 1527 – 1529, VIEW CLIP 1580

1ST OF ARS JUST N. OF AMMZZ AR

HFS 22 12:57

LITTLE OR NO AGAR GROWTH ON BOTTOM SIDE, LIGHT GROWTH ON TRAP FR1522-1526

HFS 20 13:33

SILTY, MINOR AGAR GROWTH TRAP IN SEDIMENT FR 1531-1534

HFS 29 14:16

LIGHT GROWTH ON RACKS, HEAVY GROWTH ON TRAP FR 1535-1538

HFS 28 15:00

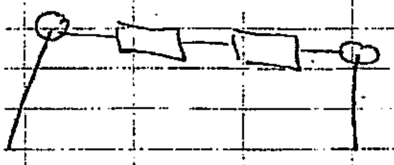
LIGHT GROWTH ON RACKS, LIGHT GROWTH ON TRAP FR 1539-1542

END 4/27/06

5/8/06

DEPLOY GOF BIOSEP

KLS, JBF, RH



SPREAD ~~036~~ 023
36.04572 / 94.65073

SPREAD ~~023~~ 036
36.04568 / 94.65438

SPREAD 0536
35.99060 / 94.56149
FR 1767 (AFTER STOWMENT)

SPREAD 053B ~9:50
35.98772 / 94.56132
FR 1743 - ~~1746~~ 1744
TB =

SPREAD 064 ~ 10:00
35.98793 / 94.56143
FR ~~1747 - 1749~~ TB =
1745 - 1746

SPREAD 065 ~ 10:00
35,98229 / 94,56579
FR 1747 - 1749

SPREAD 053F ~ 10:15
35,97625 / 94,53022
FR 1750 - 1752

SPREAD 053E ~ 10:30
35,97925 / 94,51354
FR 1753 - 1754

SPREAD 081 ~ 10:40
35,97231 / 94,48273
FR 1755 - 1756

BRIDGE XING OF
BEAVER BRANCH TRIBUTARY
TO LONGLOG CREEK

FR1763 - 1766

WATER INTAKE (TEMP) AT
BRIDGE

27 EOF 030 @ 10:50
35.96635 / 94.43243
FR1758 - 1760

SPRING 007 @ 11:00
35.95647 / 94.38542
FR1761 - 1762

HFS 30 @ 1350
TRIB TO BEAVER CREEK
NO FLOW ON ROCKS
FR1768 - 1770
~ 35.96105 / 94.81852

END 05/08/06

5/19/06

BIOSEP DEPLOYMENT
14 STRANDS OUTSIDE
IRW

JBF

BSL 8 SL
HFSC SPR1 ~16:15
FR 5434-5437
MINOR ALGAE ON GUARD

BSLB LL
HFSC LL2 ~16:45
FR 5438-5441
ALGAE ON BUOYS

END 5/19/06

6/14/06

Recover 240 Trap From HFS

JBF MLF

HFS 26 ~0730
FR5443-5450

HFS04 ~0800
FR5451-5453

HFS02 ~9:30
FR5454-5460

HFS16 ~10:00
FR5461-5463

HFS 14 ~10:30
FR5464-5467

HFS 05 ~11:15
FR5472-5476

HFS 23 FR 5477 - 5479	~ 12:00
HFS 22 FR 5480 - 5483	~ 12:30
HFS 21 FR 5484 - 5488	~ 12:50
HFS 20 FR 5489 - 5491	~ 13:45
HFS 29 FR 5492 - 5494	~ 13:45
HFS 28A FR 5495 - 5498	~ 14:15

END 6/14/06

RECEIVED EOF

6/25/06

JBF, MLF

SPMEAD 036 FR 2097-2098	~ 15:15
SPMEAD 023 FR 2099-2102	~ 15:20
SPMEAD 0536 FR 2103-2104	~ 15:45
SPMEAD 053B FR 2105-2107	~ 16:00
SPMEAD 064 FR 2108-2109	~ 16:10
SPMEAD 065 FR 2110-2111	~ 16:15

30

31

SPMAAO 053F ~16:30
FR 2112-2115

SPMAAO 031 ~16:45
FR 2116-2118

ZP EOF030 ~ 17:00
FR 2119-2121 LOST

SPMAAO 007 ~ 17:20
FR 2122-2126

End 06/25/06

06/27/06

RECOVER ASL & SPRINT CHECK TRIADS - FIRST RECOVERY

BSBLC ~0640
FR2127-2129

BSBSC ~8:40
40 PICS LOST

HPS30 ~10:00
40 PICS LOST

7/20/06

RECON TO FINAL TRAP
FROM LZE CREEK

BSBLC	19:20
in PICS	LOST

END 7/20/06

STOK0020422

mkbp
Miller Keffer Bullock Pedigo
Attorneys and Counselors

September 19, 2007

Robert George
Kutak Rock LLP
214 W Dickson St
The Three Sisters Building
Fayetteville AR 72701-5221

(Via email and FedEx)

Re: *State of Oklahoma v. Tyson et al.*,
No. 05-CV-0329-TCK-SAJ

Dear Robert:

Your letter of August 29, 2007, incorrectly characterizes the Plaintiff's production of it sampling data. Your charge that we did not complete our production as ordered, but "dribbled information and materials out to the defendants in seven separate installments" is a gross mischaracterization of our production. While it is true that there have been repeated supplements of our initial production, this is because as new data has been developed, it has been produced. It is our intent to continue to produce the data as it becomes available from our scientists until all of the data is produced.

Frankly, I do not understand your complaint that it is prejudicial to the Defendants for us to provide you the data at the point where it completes our internal QA/QC review. It is only at that point that the data becomes available to our scientists and eligible for inclusion in their analysis. The suggestion that Defendants are prejudiced unless they get data before Plaintiff's own scientists receive it is absurd. By providing it to you in this manner, we are meeting both the spirit and the letter of the Court's order.

As for your more specific issues, I will address them in the order in which you raised them:

III. Categories of Sampling Data and Materials Allegedly Being Withheld:

A. DNA/Microbial Source Tracking Test Results

I have discussed with my client the issue of whether to claim a proprietary interest in this method. While it is the result of what are well-established scientific methods, the application of these methods to tracking bacteria from poultry waste as it moves through the environment appears to be a significant advance in the traditional ways of tracking such waste. Even so, my client has determined not to make a proprietary claim on this

EXHIBIT
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D. Benthic Macro-invertebrate and Periphyton Data:

1. Sampling and Location Information: The additional data which was not included is being assembled and will be provided.

2. Readable Benthic and Periphyton Data: You indicate that some of the data sheets regarding this are unreadable. If you will indicate which ones, I will see that you have readable information.

E. Maps:

1. Sample Location Maps. It is not clear what you are referring to when you reference maps. We have previously provided the aerial photo, and the blowups of that photo on which the sampling grids for soil sampling were laid out. As you indicate, you have also found maps in the field books. For example, in the Field Books for the 2005 Sediment Sampling, which you apparently overlooked, there are numerous maps. We did not keep road maps and other driving directions. I believe that we have produced all of the maps which were retained as part of our sampling program.

2. Isopach Maps. The Isopach Map is attached. See Disc STOK_CD16.

F. Sediment Data (2004/2005)

1. Sediment Core Data: There was no analysis of Cores 00 and 05. Similarly, there has not been any particle size data collected as to the Cores. As for the

Appendices, I have attached a complete copy of the reports and the appendices. See STOK_CD17 (28872-29424).

2. Incomplete Sediment Sample Data. Your letter suggests that you understand there were up to 515 possible sediment sampling locations that were considered. As indicated by your analysis, we analyzed only approximately 119 samples from these locations. You have all of the data concerning the analysis of these samples.

G. BIOSEP Bead Data: This is attached. See Disc STOK_CD17 (28851-28871).

H. Automated High Flow Sampling Data: The height and width information which you seek is in the field books.

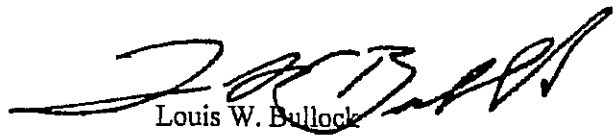
I. QA/QC Lab Packages: We are reviewing all of the labs which you listed suggesting incomplete QA/QC reports. We will supplement to the extent that any of the reports are missing this information.

J. Chain of Custody: Other than pointing to one instance, you do not identify where there is not a complete chain of custody. In spite of that, we are conducting a complete review of this and will provide chain of custody information where needed.

We have produced a massive quantity of data and, contrary to your assertions, it has been well organized and presented in a timely manner. It is true that due to the fact that it has been produced as it has been developed, it has not been organized as it would have been had you waited for the data to be completely assembled and then produced. It is also true that we have not done the data entry task for you. But even there, we have assisted you to a great extent by providing a spread sheet with the sample identifications and locations; and consistent with that, we will provide information concerning the sample locations you asked about. I am confident that we have met not only the letter but the spirit of the Court's order.

If, after reviewing this letter, you conclude that it does not answer your questions adequately, we should schedule a meet and confer so that we have an opportunity to fairly resolve your concerns.

Sincerely,



Louis W. Bullock

Cypress Creek - 2nd pass 2/2

Channel Shiner		
109 97		13
98		21
82		9
70	+73+1	33
51	+17+	36
30		27
Stone Roller		
135		3
113		11
98		37
69		97
39	+48+13+8+3+	14
Slender Madtom	→ stonerollers	
95		
85		8
75		7
65		17
46		3
Creek Chubs		
96		1
70		2
60		6
40		6
Orange Sided Darter		
62		1
50		12
36		7
Green Sided Darter	Length 52, 43, 52, 56	
Sm Mouth Bass	Length/Weight 95, 65/4.6, 75/5.3	
~~[illegible]~~	148	
Sunfish	105, 80/9.5, 102/14.0	
Mosquito Fish	25, 21, 26, 29	
Blue Gi.	100	

OVER

EXHIBIT 8

STOK0016966